



Description of DE19856440

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### State of the art

The invention proceeds from a transmission framework and telecommunications equipment with a transmission framework after the kind of the independent requirements.

Short message services for the transmission of short messages are already well-known. The short message services serve to send to a participant of a telecommunications net a short message without a telecommunications connection to this must be developed before. This particularly is in portable radio systems of interest, since participants are often not attainable there. Detailed short messages are stored by a network carrier of the telecommunications net and conveyed at a later time to the addressed participant. The participant informed by the arrival of one for it intended short message, so that it can download these of the network carrier.

Example of a short message service is the Short Message service (SMS) after the GSM standard (global system for mobile Communications). This short message service gives a transmission framework for the transmission of a short message with up to 160 7-Bit ASCII text character (American standard code for information interCHANGE). A transmission of longer texts is possible by concatenated short messages. With the help of this short message service providing and reading of the short messages are possible also with simple portable radio terminals. Since in accordance with the GSM standard only one text transmission for the short messages is intended, these would have to be converted into the title format and be back-changed after the receipt again into the binary format during the transmission of binary data, like audio data, graphic data, or such a thing.

### Advantages of the invention

The transmission framework according to invention and the telecommunications equipment according to invention with the characteristics of the independent requirements have in contrast to this the advantage that at least two data fields are intended that in the data fields data of a short message are put down and that in a first data field data of a first data format are put down and in a second data field data of a second data format different of the first data format. In this way a short message, which covers different data types, can be transferred in only one transmission framework. Thus can be integrated different media, as for example text datas, audio data and graphic data in a simple manner into only one short message, so that a Multimedia short message can be formed.

A further advantage consists of the fact that the transmission framework is not limited in its length, but that arbitrary data fields will transfer in line in the transmission framework can.

A further advantage consists of the fact that by the lining up of the data fields a simple separation and/or Download the data of an individual data field or medium with text, audio or graphic data one makes possible. Since thereby only the really needed part of the short message can be downloaded by the network carrier of the telecommunications net, transmission capacity can be saved.

By the measures specified in the Unteransprüchen favourable training further and improvements of the transmission framework indicated in the independent requirement 1 are possible.

It is particularly favourable that in the first data field a first identification is intended, which marks the structure and/or contents of the short message. In this way a participant, to whom the short message is addressed, can be only informed particularly simply by transmission the first data field of the network carrier of the telecommunications net to the addressed participant about the structure and/or contents of the short message. Due to this information can be decided with the addressed participant then, he would like to download which parts or data fields of the short message of the network carrier of the telecommunications net.

A further advantage consists of the fact that the first data field is limited to a given value its size. Thus also a participant with limited photograph capacity for the receipt of short messages can be informed about the structure and/or contents of the entire short message by transmission of the first data field.

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A further advantage consists of the fact that the overall length of the short message is not limited.

Favourable is it also that in at least two data fields a data field-specific identification is intended in each case, which marks the structure and/or contents of the appropriate data field. In this way also a report can be produced over the structure and/or contents of the entire short message by summarizing all data field-specific identifications and be sent to the addressed participant, so that the first data field is not excessively filled particularly in case of a restriction of size by identification data.

The addressed participants when downloading the associated data field of the network carrier about this data field and be adapted by the data field-specific identification thus for example a rendition of the data transmitted with the data field can be informed still more exactly better to its rendition possibilities.

It is particularly favourable that the data in a data format, readable stored in the first data field, of all participants of the telecommunications net are present. In this way short messages are at least verifiable to all participants of the telecommunications net partly. In addition all participants can be informed over for it with the network carrier available short messages at least, even if they cannot read certain data fields of the short message intended for them.

#### Design

A remark example of the invention is represented and in the following description more near described in the design. Fig. 1 a block diagram for the transmission of short messages in a telecommunications net, Fig. 2 a general structure of a transmission framework and a Fig. 3 a concrete example of a structure of a transmission framework.

#### Description of the remark example

In Fig. 1 marks 60 a first participant and 65 a second participant of a telecommunications net 10, which is designed as portable radio net as radio telecommunications net, for example in particular. The first participant 60 and the second participant 65 are designed as telecommunications equipment, in particular as radio unit, for example as portable radio equipment, as operating radio, as hand radio, or such a thing in each case. In Fig. 1 is represented in addition a network carrier 70 of the telecommunications net 10, that as telecommunications equipment, in particular as radio unit to likewise be trained can.

With the second participant 65 a short message 5 for the first participant 60 is provided and radiated with appropriate addressing over the telecommunications net 10 to the network carrier 70. The network carrier 70 stores the short message 5 and sends the first participant 60 a message, according to which these addressed short message 5 over being present one to it are informed. This message can be for example sent to the first participant 60, if the network carrier 70 determines an activation of the first participant 60. If the first participant 60 requests the network carrier 70 after receipt of the message mentioned for the transmission of the short message 5, then the network carrier sends first a report, which informs the first participant 60 about structure and/or contents of the short message 5 to 70 to the first participant 60. The first participant 60 can partly or completely download then the short message 5 of the network carrier 70, so that the short message 5 will partly or transfer completely from the network carrier 70 to the first participant 60.

In Fig. the structure of such a short message 5 is represented 2. The short message 5 is transferred thereby in a transmission framework 1 by the second participant 65 to the network carrier 70. The transmission framework 1 covers a first data field 15, a second data field 20, if necessary a third data field 25 and a fourth data field 30. The first data field 15 covers a first identification 35, which marks the structure of the short message 5. Additionally a second identification 40 can be intended in the first data field 15, which marks contents of the short message 5. The first identification 35 and the second identification 40 can be combined into only one identification also, which marks the structure and/or contents of the short message 5. In addition in the first data field 15 data of a first data format are put down. In the second data field 20 data of a second data format different of the first data format are put down. In if necessary existing further data fields the 25, 30 are likewise data put down, whose data format of the data format of the first data field 15 or the second data field 20 can be different, but do not have. More if than two data fields are in the transmission framework 1 intended, then at least data of different format are put down in two of the data fields, whereby the position of these data fields is insignificant in the transmission framework 1.

By broken lines in Fig. 2 it is suggested that the first data field 15 can cover additionally a first data field-specific identification 45, which marks the structure and/or contents of the first data field 15. Accordingly the second data field 20 can cover a second data field-specific identification 50, which marks the structure and/or contents of the second data field 20. Accordingly the third data field 25 can cover a third data field-specific identification 55, which marks the structure and/or contents of the third data field 25 and which can cover fourth data field 30 a fourth data field-specific identification 75, which marks the structure and/or contents of the fourth data field 30.

The first identification 35 can cover data concerning the number of data fields 15, 20, 25, 30 in the short message 5. Additionally or alternatively the first identification can cover 35 data concerning the data formats 30 data put down in the data fields 15, of the 20, 25. Additionally or alternatively also data concerning the size of the data fields can be contained 15, 20, 25, 30 in the first identification 35. The second identification 40 can cover then data concerning the data type 30 data put down in the data fields 15, of the 20, 25. So the second identification can contain 40 for example data concerning whether in a data field audio data or graphic data are put down.

- ▲ top It can be intended now that the network carrier 70 at the request of the first participant 60 the first data field 15 with the first identification 35 and the second identification of 40 to the first participant 60 conveyed, so that the first participant 60 can examine 40 transmitted information about the structure and/or contents of the short

message 5 due to in the first identification the 35 and the second identification, which data fields of the short message 5 it due to its functionality of the network carrier 70 download and/or show can. In addition a decision can be made over it with the first participant 60 which the readable data fields of the short message 5 at all by the network carrier 70 is to be downloaded, if not all readable data fields of the short message are 5 with the first participant 60 of interest and are transmission capacity to be saved. If after the request of the first participant 60 15 with the first identification 35 will transfer the entire first data field and the second identification 40 to the first participant 60 is, then it should be as ensured as possible that the data in a data format, readable stored in the first data field 15, of all participants of the telecommunications net 10 are present. This is given in particular if the data as well as the data in the first identification 35 and in the second identification, stored in the first data field 15, are present 40 in a title format, whereby for example the SMS offers itself to format (Short Message service) in accordance with the GSM standard (global system for mobile Communications), there it in a telecommunications net of the participants, trained trained according to the requirements of the GSM system, after the GSM standard and/or. Portable radio devices of this telecommunications net is readable. The first data field 15 can correspond so far to the data field already prescribed for the SMS Kurznachrichtendienst after the GSM standard and be limited its size to the 160 7-Bit ASCII text character (American standard code for information interCHANGE). The other data fields 20, 25, 30 do not have to be limited their size.

Also the data field-specific identifications 45, 50, 55, 75 can cover data concerning the data formats in the associated in each case data field 15, 20, 25, 30 and/or concerning the size of the associated in each case data field 15, 20, 25, 30 and/or over the data type in the respective data field 15, 20, 25, 30. If it is agreed upon that in the first data field 15 the data are present in accordance with the GSM SMS title format and this data field is limited for example on 160 7-Bit ASCII text character, then the first dataspecific identification 45 can also be void. It can be intended that in each data field 15, 20, 25, 30 only data of only one data format are put down. In addition, it can be intended that at least in one of the data fields data of several data formats are put down, in particular in the second data field 20 and/or if necessary in one or more further data fields 25, 30. It can be naturally also intended that the short message 5 more than the four in Fig. 2 represented data fields covers.

It can be also intended that the report of the network carrier 70 is provided over structure and/or contents of the short message 5 afterwards to the first participant 60 after its request by the network carrier 70 by evaluation of the data field-specific identifications 45, 50, 55, 75 and sent to the first participant 60, so that in this case the first identification 35 and the second identification 40 are not necessary and also the first data field 15 to the first participant 60 does not have to be dispatched. In this way produced report over structure and/or contents of the short message 5 can be however likewise dispatched in a data format readable of all participants of the telecommunications net 10 to the first participant 60, to which in particular again the GSM SMS title format can be planned using a data field with for example 160 7-Bit ASCII text characters.

On the basis Fig. 3 now a concrete example of a transmission framework 1 of a short message 5 is described.

The short message 5 participates designed as Multimedia short message. Resembles reference symbol in Fig. 3 marks same elements as in Fig. 2. Are in accordance with Fig. 3 within the transmission framework 1 the first data field 15, the second data field 20 and the third data field 25 intended. Data field-specific identifications in the individual data fields 15, 20, 25 are not intended. The first data field 15 thereby text datas in the ASCII title format, the second data field 20 covers audio data enclosure for example in accordance with the WAV format (Wave) and the third data field 25 covers graphic data, for example in accordance with the GIF format (graphics interCHANGE format). The first data field 15 with the text datas is text-formatted according to the GSM SMS short message service. By a broken line between the first identification 35 and the second identification 40 is in Fig. 3 suggested that the first identification 35 and the second identification 40 can be combined into a common identification. Such an common identification 35, 40 indicates the number of the data fields 15, 20, 25 and contents as well as the size of the second data field 20 and the third data field 25. So the common identification could look 35, 40 as follows:  
?Multipart/2/Audio/7654/Image/12345?

This common identification 35, 40 states that it concerns a short message out of several data fields in accordance with the keyword ?multi-part?. The digit ?? indicates that beside the always existing first data field 15 with the text datas and the length of 160 7-Bit ASCII text characters of two further data fields 20, 25 within the transmission framework 1 of the short message 5 are present. When first data type is in the common identification 35, 40 thereby ?audio? mentioned, so that from the common identification 35, 40 it follows that it concerns with the data stored in the second data field 20 audio data. When the data type ?image? called 40 second in the common identification 35, so that from the common identification 35, 40 it follows that it concerns with the data stored in the third data field 25 graphic data. Subsequently, to the data type in each case the size of the associated data field 20, 25 is indicated in the common identification 35, 40, so that from the common identification 35, 40 a length of an audio file with the audio data of 7654 byte and an image file with the graphic data of 12345 byte, transferred transferred in the second data field 20, in the third data field 25, comes out. For the first data field 15 40 is not data necessarily in the common identification 35, since it always concerns here in the described example text datas, which are limited to the GSM SMS title format compatibly and their number to 160 7-Bit ASCII text characters. It can be additionally intended that the common identification 35, 40 also in the second data field 20 and in the third data field 25 indicates the data format for the data. For the audio data in the second data field 20 then the WAV format could be indicated in the common identification 35, 40 as data format. For the graphic data in the third data field 25 the GIF format could be indicated in the common identification 35, 40 as data format. It is in addition, possible that the instructions ?audio? and ?image? of the common identification 35, 40 indicated above describe at the same time contents and also the format of the 25 data stored in the appropriate data fields 20, whereby is then for example presupposed that audio data are always present in a given format, for example the WAV format and graphic data likewise always in a given format, for example the GIF format in the appropriate data field of the transmission framework 1. Due to the common identification 35, 40 conveyed to the first participant 60 it can be decided with this whether downloading of the second data field 20 and/or the third data field 25 from the network carrier 70 is at all meaningful or Intended. If the first participant is not audioable 60, D. h. no processing or rendition possibility for audio data possesses, then downloading of the audio data from the second data field 20 meaningful from the network carrier 70 Is not. If the first participant is not picturable 60, D. h. no processing or

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rendition of graphic data with the first participant 60 is possible, then downloading of graphic data from the third data field 25 meaningful from the network carrier 70 is likewise not.

For the selection of the data fields of the transmission framework 1 of the short message 5 which can be downloaded by the network carrier 70 it can be intended, the common identification 35 to indicate 40 at an indicator of the first participant 60.

The short message 5 could cover also a transmission framework 1 from exactly two data fields 15, 20, whereby in the first data field 15 the text datas with the common identification 35, 40 are summarized to be present as described and in the second data field 20 several data types or media. In addition, it can be intended that N in the short message 5 data types or media on N, which can be transferred, and/or N + 1 data fields within the transmission framework 1 of the short message 5 to be distributed. The first participant 60 can download all data fields of the short message 5 individually or together of the network carrier 70.

With the first participant 60 an evaluation transferred of the common identification of 35, 40, so that their announcement on the indicator of the first participant already indicates 60, which data fields of the short message 5 at all by the network carrier 70 can also already take place be downloaded can due to the functionality of the first participant 60.

The second participant 65 produces a short message 5 within the described transmission framework 1. The production of a transmission framework 1 with the second participant 65 can take place thereby simply via joining the individual data fields 15, 20, 25, 30 if necessary under adding in each case one of the data field-specific identifications 45, 50, 55, 75. The network carrier 70 again receives and stores short messages 5 within the described transmission framework 1. With appropriate functionality of the first participant 60 it can be intended to download and transfer to the first participant 60 the transmission framework 1 completely of the network carrier 70. In this case the first participant 60 receives the short message 5 within the described transmission framework 1, stores her if necessary and/or shows her optically and/or acoustically. The first participant 60 receives at least an individual data field of the transmission framework 1, stores it if necessary and/or shows it optically and/or acoustically. An evaluation of received data fields 15, 20, 25, 30 with the network carrier 70 and with the first participant 60 can take place for example due to the data field-specific identifications 45, 50, 55, 75, if these will transfer 15, 20, 25, 30 with the associated data fields or due to the first identification 35 and/or second transferred if necessary identification 40.

The transmission framework according to invention 1 is limited not to the use a radio telecommunications net, but can be used also in a wire-bound telecommunications net 10, whereby then also the participants are wire-bound 60, 65 and the network carriers 70. It can be also intended that one of the two participants 60, 65 over a wire-bound telecommunications net 10 and the other one of the two participants 60, 65 over a wireless telecommunications net 10 with the network carrier 70 stand in connection, so that the transmission framework 1 is suitable both for the transmission of short messages 5 in wire-bound and in the wireless telecommunications net 10.